

# Penghsuan Huang

phuang65@wisc.edu | +1 608 977 3723 | linkedin.com/in/penghsuanhuang

## EDUCATION

### University of Wisconsin-Madison

PhD student in Chemistry

Advisor: Prof. Lingjun Li

Madison, WI

Sept. 2021-Present

### National Taiwan University (NTU)

Bachelor of Science in Chemistry

Advisor: Prof. Cheng-Chih Richard Hsu

Taipei, Taiwan (R.O.C.)

Sept. 2016-June 2020

## EXPERIENCE

### Laboratory of Prof. Cheng-Chih Richard Hsu, NTU

Research Assistant, Project Title: "Predicting Potential Biomarkers for Different Breast Cancer

Subtypes by MALDI&DESI Mass Spectrometry Imaging and Machine Learning"

- Optimized and maintained the lab-built software (MATLAB) for breast cancer tissues diagnosis.
- Implemented statistical and machine learning methods to dig out potential biomarkers.
- Mentored 1 undergraduate and 1 master student for conducting experiments.

Taipei, Taiwan

July 2020-Feb. 2021

### Laboratory of Prof. John G. Marshall (Ryerson University, Canada)

Undergraduate Research Assistant, Project Title: "A Rapid Diagnosis of COVID-19 with Enzyme-

Linked Immuno-Mass Spectrometric Assay (ELIMSA) Method"

- Set up a rigid ELIMSA protocol to diagnose suspected COVID-19 patients and shortened the analysis time.
- Operated the ELISA assay for Covid-19 spike protein and antibody recognition.
- Optimized the liquid chromatography parameters for the assay and improved the sensitivity.

Taipei, Taiwan

July 2020-Feb. 2021

### Chemistry Lab (I), Department of Chemistry, NTU

Teaching Assistant

- Assisted students' practice in Chemistry lab. Class taught totaled around 60 students and responsible for one third of the class of a semester. Graded weekly lab reports and experimental techniques examination.

Taipei, Taiwan

Feb. 2020-June 2020

### Laboratory of Prof. Cheng-Chih Richard Hsu & Prof. Pi-Tai Chou, NTU

Project Manager, Project Title: "Toward the Rational Design of Universal Dual Polarity

Matrix for MALDI Mass Spectrometry"; Undergraduate Research Assistant

- Designed and developed a series of novel dual-polarity MALDI matrices for biological samples mass spectrometry imaging (published on *Analytical Chemistry* w/ co-first authorship).
- Drafted and applied for the US patent with this technique.

Taipei, Taiwan

July 2018-June 2020

## FELLOWSHIPS AND AWARDS

**LCY Group College Student Research Award** for Outstanding Academic Performance in Chemistry, LCY Chemical Corp. (Mar. 2021); **Suu-Nien Fu's Award** for the Bachelor Degree Thesis Award, 1<sup>st</sup>, NTU (June 2020); **Outstanding Undergraduate Student Poster Award**, NTU (June 2020); **Travel Grant** for International Academic Exchanges, Taiwan Society for Mass Spectrometry (TSMS) & NTU (Feb. 2020; May 2020); **Young Scientist Forum Best Presenter**, 8th Asia-Oceania Mass Spectrometry Conference (Jan. 2020).

## PUBLICATIONS AND CONFERENCES

1 first author; 1 co-author; 2 oral & 2 poster conference presentations.

- **Huang, P.**; Huang, C.-Y.; Lin, T.-C.; Lin, L.-E.; Yang, E.; Lee, C.; Hsu, C.-C.; Chou, P.-T. Toward the Rational Design of Universal Dual Polarity Matrix for MALDI Mass Spectrometry. *Anal. Chem.* **2020**, 92 (10), 7139-7145.
- Chen, C.-L.; Kuo, T.-H.; Chung, H.-H.; **Huang, P.**; Lin, L.-E.; Hsu, C.-C. Remodeling NanoDESI Platform with Ion Mobility Spectrometry to Expand Protein Coverage in Cancerous Tissue. *J Am Soc Mass Spectrom* **2021**, 32 (3), 653-660.

## PATENT

---

**Huang et al.**, 2020. USE OF ANTHRANILIC ACID DERIVATIVE AS MATRIX FOR MALDI MASS SPECTROMETRY. US 17011460, filed Sep 03, 2020. Patent Pending.

## LEADERSHIP

---

### **TEAMLEADER, 2019 Winter Chemistry Camp, National Taiwan University (Sept. 2018-Feb. 2019)**

Organized and supervised the annual Winter Chemistry Camp. Arranged activities, chemistry lab practices and social activities for up to 100 high school students to explore their interest in chemistry. Coordinated with different faculties to hold many social activities. Led a team to assist students to participate in chemical experiments and visit *Academia Sinica*(Taiwan).

## SKILLS AND INTERESTS

---

**Laboratory:** mass spectrometry (MALDI-TOF/TOF, MALDI-MSI, DESI-MSI, QQQ, ESI-MS/MS (Orbitrap Elite), UHPLC-MS/MS (Orbitrap Elite)), ion source (hand-made ESI, hand-made EESI, DESI), chromatography (HPLC/UPLC)

**Technical:** tissue cryosection, H&E staining, and microscopy

**Computer:** MATLAB, MS data processing, GraphPad Prism, Microsoft Office

**Personal:** table tennis, photo editing w/ Adobe Lightroom & Photoshop, biking, spanish (basic level)